

Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Listing of Claims

Claims 1-7. (Canceled)

Claim 8. (Previously Presented) A method of esterification or transesterification, comprising:

reacting (meth)acrylic acid with an alcohol or a (meth)acrylic acid ester with an alcohol, each in the presence of a catalyst, the esterification or transesterification reaction being conducted under conditions which at least suppress the polymerization of (meth)acrylate compounds by one of the following techniques:

a) thermally treating the alcohol reactant in the absence of water before the esterification or transesterification reaction and then formulating an esterification or transesterification reaction medium containing the heat treated alcohol and a polymerization inhibitor in an amount of at least 0.2 mmol per kg of heat treated alcohol and per meq/kg of the peroxide number of the alcohol determined by the Sully method; or

b) thermally treating the alcohol reactant in the absence of water before the esterification or transesterification reaction and then conducting the esterification or transesterification reaction in a medium containing the heat treated alcohol; or

c) thermally treating the alcohol reactant in the absence of water before the esterification or transesterification reaction and then metering the (meth)acrylic acid or (meth)acrylic ester reactant into a reactor at a rate of less than 250 g per hour and liter of reactor volume which contains reaction medium comprising the thermally treated alcohol; or

d) metering the (meth)acrylic acid or (meth)acrylic ester reactant into a reactor at a rate of less than 250 g per hour and liter of reactor volume which contains a reaction medium;
or

e) metering the (meth)acrylic acid or (meth)acrylic ester reactant into a reactor at a rate of less than 250 g per hour and liter of reactor volume which contains a reaction medium comprising an alcohol and at least 0.2 mmol of polymerization inhibitor per kg of alcohol and per meq/kg of peroxide number of the alcohol determined by the Sully method; or

f) thermally treating the alcohol reactant in the absence of water before the esterification or transesterification reaction, formulating an esterification or transesterification reaction medium containing the heat treated alcohol and a polymerization inhibitor in an amount of at least 0.2 mmol per kg of heat treated alcohol and per meq/kg of the peroxide number of the alcohol determined by the Sully method and then metering the (meth)acrylic acid or (meth)acrylic ester reactant into a reactor at a rate of less than 250 g per hour and liter of reactor volume.

Claim 9. (Previously Presented) The method as claimed in claim 8, wherein the peroxide number of the alcohol of method aspects a) and e) is at least 0.1 meq/kg.

Claim 10. (Previously Presented) The method as claimed in claim 8, wherein the alcohol reactant is a mono- or polyhydric alcohol.

Claim 11. (Previously Presented) The method as claimed in claim 10, wherein the alcohol reactant is methanol, ethanol, isopropanol, n-butanol, sec-butanol, isobutanol, tert-butanol, ethylene glycol monomethyl ether, ethylene glycol monoethyl ether, diethylene glycol, 1,3-propanediol monomethyl ether, 1,2-propanediol, ethylene glycol, 2,2-dimethyl-

1,2-ethanediol, 1,3-propanediol, 1,2-butanediol, 1,4-butanediol, dimethylaminoethanol, n-hexanol, n-heptanol, n-octanol, n-decanol, n-dodecanol, 2-ethylhexanol, 3-methylpentane-1,5-diol, 2-ethylhexane-1,3-diol, 2,4-diethyloctane-1,3-diol, 1,6-hexanediol, cyclopentanol, cyclohexanol, cyclooctanol, cyclododecanol, triethylene glycol, tetraethylene glycol, pentaethylene glycol, n-pentanol, stearyl alcohol, cetyl alcohol, lauryl alcohol, trimethylolbutane, trimethylolpropane, trimethylolethane, neopentyl glycol and the ethoxylated and propoxylated secondary products thereof, neopentyl glycol hydroxypivalate, pentaerythritol, 2-ethyl-1,3-propanediol, 2-methyl-1,3-propanediol, 2-ethyl-1,3-hexanediol, glycerol, ditrimethylolpropane, dipentaerythritol, hydroquinone, bisphenol A, bisphenol F, bisphenol B, bisphenol S, 5-methyl-5-hydroxymethyl-1,3-dioxane, 2,2-bis(4-hydroxycyclohexyl)propane, 1,1-, 1,2-, 1,3- or 1,4-cyclohexanedimethanol, or 1,2-, 1,3- or 1,4-cyclohexanedimethanol.

Claim 12. (Previously Presented) The method as claimed in claim 11, wherein the alcohol reactant is methanol, ethanol, n-butanol, 2-ethylhexyl alcohol and/or dimethylaminoethanol.

Claim 13. (Currently Amended) The method as claimed in claim 8, wherein the polymerization inhibitor is a member selected from the group consisting of N-oxides, phenols, ~~quiones~~ quinones, aromatic amines, hydroxylamines, imines, sulfonamides, oximes, phosphorus compounds, sulfur compounds, metal salts and mixtures thereof.

Claim 14. (Previously Presented) The method as claimed in claim 13, wherein the polymerization inhibitor is phenothiazine.

Claim 15. (Previously Presented) The method as claimed in claim 8, wherein the alcohol reactant contains less than 1 % by wt water.

Claim 16. (Previously Presented) The method as claimed in claim 15, wherein the thermal treatment of the alcohol reactant is done at a temperature of at least 70° C for at least one hour.

Claim 17. (Previously Presented) The method as claimed in claim 8, wherein the esterification reaction is conducted in the presence of an acid catalyst selected from the group consisting of sulfuric acid, p-toluenesulfonic acid, benzenesulfonic acid, dodecylbenzenesulfonic acid, methanesulfonic acid and mixtures thereof.

Claim 18. (Previously Presented) The method as claimed in claim 8, wherein the transesterification reaction is conducted in the presence of a catalyst of titanium oxide, titanium phenoxide, dibutyltin oxide, chelate compounds of hafnium, titanium, zirconium or calcium, alkali metal and magnesium oxides, organotin compounds or calcium or lithium compounds.

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